

In re Appln. of Smith
Application No. 10/030,317

CLAIM AMENDMENTS

Please amend the claims to the following form:

1. (Currently Amended) An apparatus for measuring decay in intensity of electromagnetic radiation passing through a radiation-absorbent sample due to absorption of radiation by the sample, comprising a source of electromagnetic radiation having a wavelength within an absorption band of the sample,

partially-reflective means for partially reflecting said electromagnetic radiation at successive positions which are spaced apart from each other along a predetermined path along a single geometrical ray through the sample, said partially-reflective means being effective at each said successive position to separate incident radiation into a reflected part which is caused by the partially-reflective means to follow said predetermined path and an unreflected part,

and derivation means for deriving a value of said decay from measurements of intensity of the unreflected parts of the electromagnetic radiation produced at a number of different said positions along said predetermined path.

2. (Original) An apparatus as claimed in claim 1 wherein said derivation means derives said value of decay from measurements of intensity of the unreflected parts of the electromagnetic radiation produced at all said positions along said predetermined path.

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3. (Previously Presented) An apparatus as claimed in claim 1 wherein said partially-reflective means comprises a plurality of discrete partially-reflective elements.

4. (Previously Presented) An apparatus as claimed in claim 1 wherein said partially-reflective means comprises at least one partially-reflective element, the or each said partially-reflective element being arranged to partially reflect said electromagnetic radiation incident at a plurality of said positions.

5. (Original) An apparatus as claimed in claim 4 wherein said partially-reflective means comprises a pair of parallel, partially-reflective plates arranged so that said predetermined path extends alternately between the plates.

6. (Original) An apparatus as claimed in claim 1 wherein said partially reflective means is so arranged that said predetermined path occupies a substantially two-dimensional plane.

7. (Currently Amended) An apparatus as claimed in claim 1 ~~wherein~~ which said partially-reflective means is so arranged that said predetermined path occupies a three-dimensional space.

8. (Previously Presented) An apparatus as claimed in claim 1 including a chamber for containing said sample.

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9. (Original) An apparatus as claimed in claim 8 including means for admitting sample to and discharging sample from, the chamber.

10. (Previously Presented) An apparatus as claimed in claim 8 wherein said partially-reflective means is supported by or formed in a wall of the chamber.

11. (Previously Presented) An apparatus as claimed in claim 1 wherein said partially-reflective means has substantially the same reflection coefficient at each said successive position.

12. (Previously Presented) An apparatus as claimed in claim 1 wherein said source of electromagnetic radiation is a pulsed source.

13. (Previously Presented) An apparatus as claimed in claim 1 wherein said source of electromagnetic radiation is a monochromatic source.

14. (Previously Presented) An apparatus as claimed in claim 1 wherein said source of electromagnetic radiation is a wideband source.

15. (Previously Presented) An apparatus as claimed in claim 1 wherein said source simultaneously produces electromagnetic radiation at a number of discrete wavelengths.

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16. (Previously Presented) An apparatus as claimed in claim 1 wherein said source of electromagnetic radiation produces electromagnetic radiation in the wavelength range from 2 nm to 10mm.

17. (Previously Presented) An apparatus as claimed in claim 8 wherein said source is external to said chamber.

18. (Previously Presented) An apparatus as claimed in claim 8 wherein said source is internal to said chamber.

19. (Previously Amended) An apparatus as claimed in claim 8 wherein said source forms part of the chamber wall.

20. (Original) An apparatus as claimed in claim 5 wherein said source is arranged to direct a beam of electromagnetic radiation onto a surface of one of said plates at an angle to said surface no greater than 10° .

21. (Original) An apparatus as claimed in claim 1 wherein said different positions are spaced apart from each other equidistantly.

22. (Currently Amended) A method for measuring decay in intensity of electromagnetic radiation passing through a radiation-absorbent sample due to absorption of radiation by the sample, ~~composing~~ comprising.

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generating electromagnetic radiation having a wavelength within an
absorption band of the sample,

partially-reflecting said electromagnetic radiation at successive positions
which are spaced apart from each other along a predetermined path along a single
geometrical ray through the sample, whereby to separate radiation into a reflected part
which is caused to follow said predetermined path and an unreflected part,

and deriving a value of said decay from measurements of intensity of the
unreflected parts of the electromagnetic radiation produced at a number of different said
positions along said predetermined path.